

Serial No.: 10/748,778
Filed: December 29, 2003

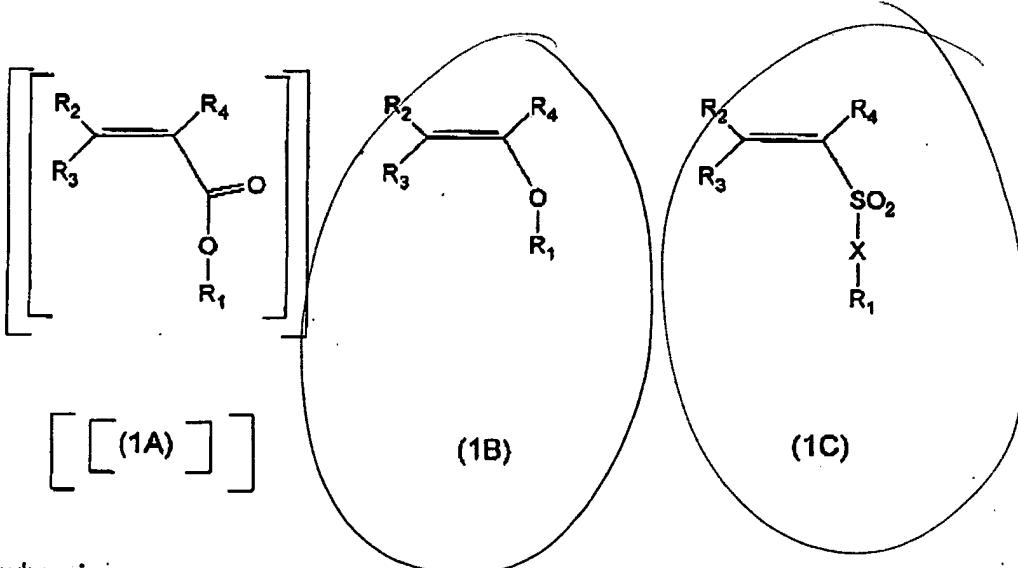
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (canceled)
2. (currently amended) The A photoresist composition comprising:

a) a polymer that is insoluble in an aqueous alkaline solution and comprises at least one acid labile group, and comprises at least one monomer unit having a pendant group selected from unsubstituted or substituted diamantane, triamantane or mixtures thereof; and

b) a compound capable of producing an acid upon irradiation, of claim 1
wherein the monomer unit is selected from



wherein

Serial No.: 10/748,778
Filed: December 29, 2003

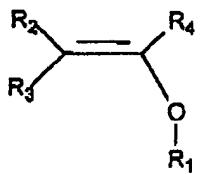
R₁ is -Z or -Y-Z where Y is a linear or branched alkylene or a monocyclic or polycyclic alkylene, Z is unsubstituted or substituted diamantane, triamantane or mixtures thereof; R₂, R₃, and R₄ are each independently selected from hydrogen, alkyl, alkoxyalkyl, cycloalkyl, cycloalkenyl, aryl, aralkyl, and CN or any two of R₂, R₃, and R₄ together with the carbon atoms to which they are attached form an unsubstituted or substituted mono- or polycycloalkenyl; X is O or NR₂.

Claims 3 to 5 (canceled)

4. (canceled)

5. (canceled)

6. (currently amended) The photoresist composition of claim [[1]] 2 wherein the monomer unit is



(1B)

7. (canceled)

8. (previously presented) The photoresist composition of claim 6 wherein the diamantane and triamantane is substituted by one or more groups selected from hydroxy, hydroxyalkyl, alkyl, alkoxy, aryl, cycloalkyl, cycloalkyloxy, alkoxyalkyl,

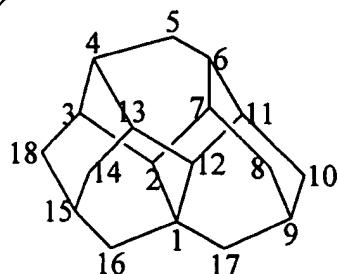
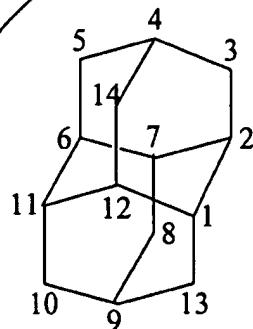
5 R_1 is $-Z$ or $-Y-Z$ where Y is a linear or branched alkylene or a monocyclic or polycyclic alkylene, Z is unsubstituted or substituted higher adamantane; R_2 , R_3 , and R_4 are each independently selected from hydrogen, alkyl, alkoxyalkyl, cycloalkyl, cycloalkenyl, aryl, aralkyl, and CN or any two of R_2 , R_3 , and R_4 together with the carbon atoms to which they are attached form an unsubstituted or substituted mono- or polycycloalkenyl; X is O or NR_2 .

10 Examples of higher adamantanes include diamantane, triamantane, and tetramantane. In general, adamantanes have the general formula of $C_{(4k+6)}H_{(4k+12)}$ where $k = 0, 1, 2, 3$, and so on. When k is 0, the formula is that of adamantane; when k is 1, the formula is that of diamantane; when k is 2, the formula is that of triamantane, and so forth.

15 The IUPAC numbering scheme for diamantane and triamantane is shown below (from United States Patent No. 5019660 and United States Patent No.

5576355)

20



25 Examples of structures for Z include, for example, 3- (or 5-)alkyl-diamantanes and 5- or 18-alkyl-triamantanes, e.g.,